

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

GIRAFA.COM, INC.,)	
)	
Plaintiff,)	
)	
v.)	C.A. No. _____
)	
AMAZON WEB SERVICES LLC,)	
AMAZON.COM, INC.,)	DEMAND FOR JURY TRIAL
ALEXA INTERNET, INC.,)	
IAC SEARCH & MEDIA, INC.,)	
SNAP TECHNOLOGIES, INC.,)	
YAHOO! INC.,)	
SMARTDEVIL INC.,)	
EXALEAD, INC.,)	
and)	
EXALEAD S.A.,)	
)	
Defendants.)	

COMPLAINT FOR PATENT INFRINGEMENT

1. Plaintiff Girafa.com, Inc. (“Girafa” or “Plaintiff”), by and through its attorneys, brings this action seeking monetary damages and injunctive relief against Defendants Amazon Web Services LLC (“AWS”), Amazon.com, Inc. (Amazon), Alexa Internet, Inc., (“Alexa”), IAC Search & Media, Inc. (“IAC”), Snap Technologies, Inc., (“Snap”), Yahoo! Inc., (“Yahoo”), Smartdevil Inc., (“Smartdevil”), Exalead, Inc., (“Exalead, Inc.”), and Exalead S.A., (Exalead, S.A.) (collectively “Defendants”), to remedy Defendants’ infringement of United States Patent No. 6,864,904 (“the ‘904 patent”), in violation of the Patent Act of the United States, 35 U.S.C. §§ 1 et seq., and the harm caused thereby.

For its Complaint against Defendants, Girafa alleges as follows:

PARTIES

2. Plaintiff Girafa is a corporation organized and existing under the laws of Delaware, having its principal place of business at 1313 N. Market Street, Suite 5100, Wilmington, Delaware 19801.

3. Plaintiff Girafa owns the entire right, title, and interest in United States Patent No. 6,864,904, described below, for a framework for providing visual context to WWW hyperlinks.

4. On information and belief, Defendant AWS is a limited liability company organized and existing under the laws of Delaware, with a principal place of business at 1200 12th Avenue South, Seattle, Washington 98144-2734.

5. Defendant Amazon is a corporation organized and existing under the laws of Delaware, with a principal place of business at 1200 12th Avenue South, Suite 1200, Seattle, Washington 98144-2734.

6. Defendant Alexa is a corporation organized and existing under the laws of California, with a principal place of business at Presidio of San Francisco, Building 37, P.O. Box 29141, San Francisco, CA 94129.

7. Defendant IAC is a corporation organized and existing under the laws of Delaware, with a principal place of business at 555 12th Street, Suite 500, Oakland, CA 94607.

8. Defendant Snap is a corporation organized and existing under the laws of Delaware, with a principal place of business at 130 West Union Street, Pasadena, CA 91103.

9. Defendant Yahoo is a corporation organized and existing under the laws of Delaware, with a principal place of business at 701 First Avenue, Sunnyvale, CA 94089.

10. Defendant Smartdevil is a corporation organized and existing under the laws of Canada, with a principal place of business at 2156 Rousseau, Montreal QC H8N 1K7 Canada.

11. Defendant Exalead, Inc. is a corporation organized and existing under the laws of Delaware, with a principal place of business at 90 Park Avenue, New York, NY 10016.

12. Defendant Exalead, S.A. is a corporation organized and existing under the laws of France, with a principal place of business at 10, place de la Madeleine, Paris, France 75008.

JURISDICTION AND VENUE

13. This is an action arising under the patent laws of the United States.

14. This court has jurisdiction over the subject matter of this action pursuant to 28 U.S.C. §§ 1331, 1332 and 1338.

15. AWS, directly and/or through third parties, is doing business in this judicial district by selling, offering to sell, and otherwise making available its products and services, including the “<http://developer.amazonwebservices.com>” website.

16. Accordingly, this Court has personal jurisdiction over AWS pursuant to Fed. R. Civ. P. 4(k)(1)(A) and 10 Del. C. § 3104(b) and (c).

17. Amazon, directly and/or through third parties, is doing business in this judicial district by selling, offering to sell, and otherwise making available its products and services, including the “Amazon.com” website. Amazon is also incorporated in Delaware.

18. Accordingly, this Court has personal jurisdiction over Amazon pursuant to Fed. R. Civ. P. 4(k)(1)(A) and 10 Del. C. § 3104(b) and (c).

19. Alexa, directly and/or through third parties, is doing business in this judicial district by selling, offering to sell, and otherwise making available its products and services, including the “Alexa.com” website.

20. Accordingly, this Court has personal jurisdiction over Alexa pursuant to Fed. R. Civ. P. 4(k)(1)(A) and 10 Del. C. § 3104(b) and (c).

21. IAC, directly and/or through third parties, is doing business in this judicial district by selling, offering to sell, and otherwise making available its products and services, including the “Ask.com” website. IAC is also incorporated in Delaware.

22. Accordingly, this Court has personal jurisdiction over IAC pursuant to Fed. R. Civ. P. 4(k)(1)(A) and 10 Del. C. § 3104(b) and (c).

23. Snap, directly and/or through third parties, is doing business in this judicial district by selling, offering to sell, and otherwise making available its products and services, including the “Snap.com” website, Snap Shots™, and the Snap Shots™ browser add-on. Snap is also incorporated in Delaware.

24. Accordingly, this Court has personal jurisdiction over Snap pursuant to Fed. R. Civ. P. 4(k)(1)(A) and 10 Del. C. § 3104(b) and (c).

25. Yahoo, directly and/or through third parties, is doing business in this judicial district by selling, offering to sell, and otherwise making available its products and services, including Yahoo’s www.mybloglog.com website, Yahoo! Bookmarks service, and the “Del.icio.us” website. Yahoo is also incorporated in Delaware.

26. Accordingly, this Court has personal jurisdiction over Yahoo pursuant to Fed. R. Civ. P. 4(k)(1)(A) and 10 Del. C. § 3104(b) and (c).

27. Smartdevil, directly and/or through third parties, is doing business in this judicial district by selling, offering to sell, and otherwise making available its products and services, including the “Thumbshots.com” and “thumbshots.org” website.

28. Accordingly, this Court has personal jurisdiction over Smartdevil pursuant to Fed. R. Civ. P. 4(k)(1)(A) and 10 Del. C. § 3104(b) and (c).

29. Exalead, Inc. and Exalead S.A., directly and/or through third parties, are doing business in this judicial district by selling, offering to sell, and otherwise making available their products and services, including the “Exalead.com” website and exalead one:search™, one:workgroup™, one:enterprise™, and one:datacenter™. Exalead Inc is also incorporated in Delaware.

30. Accordingly, this Court has personal jurisdiction over Exalead Inc. and Exalead S.A. pursuant to Fed. R. Civ. P. 4(k)(1)(A) and 10 Del. C. § 3104(b) and (c).

31. Girafa is a Delaware corporation. Venue is proper in this district pursuant to 28 U.S.C. §§ 1391(b) and (c) and 1400(b) for at least the reasons that the Defendants reside in Delaware and/or each have committed acts within this judicial district giving rise to this action and do business in this district at least by providing website services to users in this district.

BACKGROUND

32. On December 9, 1999, Girafa filed provisional application 60/169,328 for a United States Patent.

33. On November 8, 2000, Girafa filed non-provisional application 09/708,191 for a United States Patent claiming priority based on provisional application 60/169,328.

34. On March 8, 2005, the patent application mentioned in paragraph 33 was duly and legally issued, by the United States Patent and Trademark Office, as United States Patent No. 6,864,904 B1 (“the ‘904 patent”), entitled “Framework for Providing Visual Context to WWW Hyperlinks.”

35. A true and correct copy of the ‘904 patent is attached hereto as Exhibit A.

36. On information and belief, Defendants have offered and continue to offer products and services which infringe the ‘904 patent.

PATENT INFRINGEMENT

37. Girafa incorporates by reference each and every allegation contained in the paragraphs above as though fully set forth at length.

38. Plaintiff Girafa owns all right, title, and interest in the ‘904 patent, including the right to sue thereon and the right to recover for infringement thereof.

39. On information and belief, Defendants make, use, import, offer to sell, market, provide, and/or sell, directly or through third parties, computer and computer-related products and services, including thumbnail images of websites and websites displaying thumbnail images of other websites, in the United States and worldwide.

40. On information and belief, Defendants, through the activities and products listed and described in the paragraphs above, have infringed and are directly infringing the '904 patent, and are also aiding, abetting, and contributing to, and actively inducing infringement of the '904

patent by non-parties, in the United States and countries foreign thereto, in violation of 35 U.S.C. § 271.

41. By reason of Defendants' infringing activities, Girafa has suffered, and will continue to suffer, substantial damages in an amount yet to be determined.

42. Defendants' acts complained of herein have damaged and will continue to damage Girafa irreparably. Girafa has no adequate remedy at law for these wrongs and injuries. Girafa is therefore entitled to a preliminary and permanent injunction restraining and enjoining Defendants and their agents, servants, and employees, and all persons and entities acting on behalf thereof or in concert therewith, from infringing the claims of the '904 patent.

43. Defendants are not licensed or otherwise authorized to make, use, import, offer to sell, market, provide, or sell any product or method claimed in the '904 patent, and Defendants' infringing conduct is, in every instance, without Girafa's consent.

44. On information and belief, Defendants' infringement has been and continues to be willful.

PRAYER FOR RELIEF

WHEREFORE, Girafa respectfully requests that the Court grant the following relief:

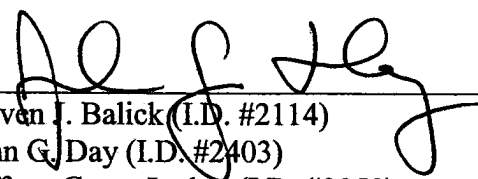
- a) enter judgment that Defendants infringe and have infringed the '904 patent;
- b) declare that Defendants' infringement of the '904 patent has been willful;
- c) enter a preliminary and permanent injunction enjoining Defendants, their officers, agents, servants, employees, and attorneys, and those persons and entities in active concert or participation with them, from further infringement of the '904 patent;

- d) enter judgment awarding Girafa damages from Defendants adequate to compensate for Defendants' infringement, including interest and costs;
- e) enter judgment awarding Girafa treble damages based on Defendants' copying and willful infringement of the '904 patent;
- f) declare this case to be exceptional and enter judgment awarding Girafa increased damages under 35 U.S.C. § 284 and its reasonable attorney fees and costs under 35 U.S.C. § 285; and
- g) award Girafa such further relief as this court deems just and proper.

DEMAND FOR JURY TRIAL

Girafa respectfully requests a trial by jury on all issues so triable, pursuant to Fed. R. Civ. P. 38.

ASHBY & GEDDES



Steven J. Balick (I.D. #2114)
John G. Day (I.D. #2403)
Tiffany Geyer Lydon (I.D. #3950)
500 Delaware Avenue, 8th Floor
P.O. Box 1150
Wilmington, DE 19899
(302) 654-1888
sbalick@ashby-geddes.com
jday@ashby-geddes.com
tlydon@ashby-geddes.com

Attorneys for Girafa.com, Inc.

Of Counsel:

William H. Mandir
John F. Rabena
SUGHRUE MION, PLLC
2100 Pennsylvania Ave., N.W.
Washington D.C. 20037
(202) 293-7060

Dated: December 5, 2007
186418.1

EXHIBIT A



US006864904B1

(12) **United States Patent**
Ran et al.

(10) **Patent No.:** **US 6,864,904 B1**
(45) **Date of Patent:** **Mar. 8, 2005**

(54) **FRAMEWORK FOR PROVIDING VISUAL
CONTEXT TO WWW HYPERLINKS**

(75) Inventors: **Shirli Ran**, Savion (IL); **Eldad
Barnoon**, Tel Aviv (IL); **Yuval Yarom**,
Ra'anana (IL)

(73) Assignee: **Girafa.com Inc.**, Wilmington, DE (US)

(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 224 days.

(21) Appl. No.: **09/708,191**

(22) Filed: **Nov. 8, 2000**

Related U.S. Application Data

(60) Provisional application No. 60/169,328, filed on Dec. 6,
1999.

(51) **Int. Cl.**⁷ **G09G 5/00**

(52) **U.S. Cl.** **345/760; 345/744; 345/763;**
345/838

(58) **Field of Search** **345/744, 760,**
345/763, 838; 715/501.1, 526, 513

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,940,075 A * 8/1999 Mutschler et al. 345/760
5,963,964 A * 10/1999 Nielsen 715/501.1
6,073,168 A * 6/2000 Mighdoll et al. 709/217
6,119,135 A * 9/2000 Helfman 715/513
6,144,962 A * 11/2000 Weinberg et al. 707/10
6,154,771 A 11/2000 Rangan et al.
6,181,342 B1 * 1/2001 Niblack 345/635
6,182,097 B1 * 1/2001 Hansen et al. 715/526
6,184,886 B1 * 2/2001 Bates et al. 345/760
6,199,081 B1 * 3/2001 Meyerzon et al. 715/513
6,230,321 B1 5/2001 Kim
6,262,708 B1 * 7/2001 Chu 345/667
6,273,857 B1 * 8/2001 Aden 600/437
6,300,947 B1 10/2001 Kanevsky
6,310,601 B1 * 10/2001 Moore et al. 345/660

6,356,908 B1 * 3/2002 Brown et al. 707/10
6,369,811 B1 * 4/2002 Graham et al. 345/764
6,374,273 B1 4/2002 Webster
6,401,118 B1 * 6/2002 Thomas 709/224
6,421,070 B1 * 7/2002 Ramos et al. 345/763
6,456,307 B1 * 9/2002 Bates et al. 345/838
6,486,895 B1 * 11/2002 Robertson et al. 345/776
6,526,424 B2 * 2/2003 Kanno et al. 715/512
6,578,078 B1 * 6/2003 Smith et al. 709/224
6,613,100 B2 * 9/2003 Miller 715/526
6,665,838 B1 * 12/2003 Brown et al. 715/501.1

OTHER PUBLICATIONS

Andy Cockburn, et al, "Issues of page representation and organization in web browser's revisitation tools", proceedings of the OZCHI'99 Australian Conf. of Human Computer Interaction, Nov. 28–30, Wagga Wagga Australia.

Benjamin B. Bederson, et al, "A zooming web browser", published in 1996 in the 9th Annual ACM Symposium on user-interface software and technology.

George Robertson, et al, "Data mountain: using spatial memory for document management", published in 1998 in the 9th Annual ACM Symposium on user-interface software and technology.

Mary Czerwinski, et al, "Visualizing implicit queries for information management and retrieval", published in May 1999, in the proceedings of the ACM Conference on human factors in computing systems.

* cited by examiner

Primary Examiner—Matthew C. Bella

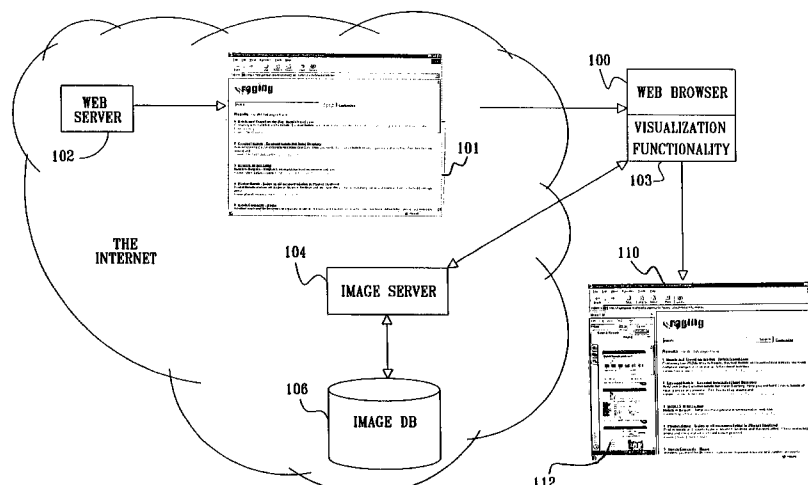
Assistant Examiner—Po Wei Chen

(74) *Attorney, Agent, or Firm*—Ladas & Parry

(57) **ABSTRACT**

A method and a system for presenting Internet information to a user including providing to a user a visual image of a web page containing at least one hyperlink, and at least partially concurrently providing a visual image of another web page of at least one web site which is represented by the at least one hyperlink.

56 Claims, 11 Drawing Sheets

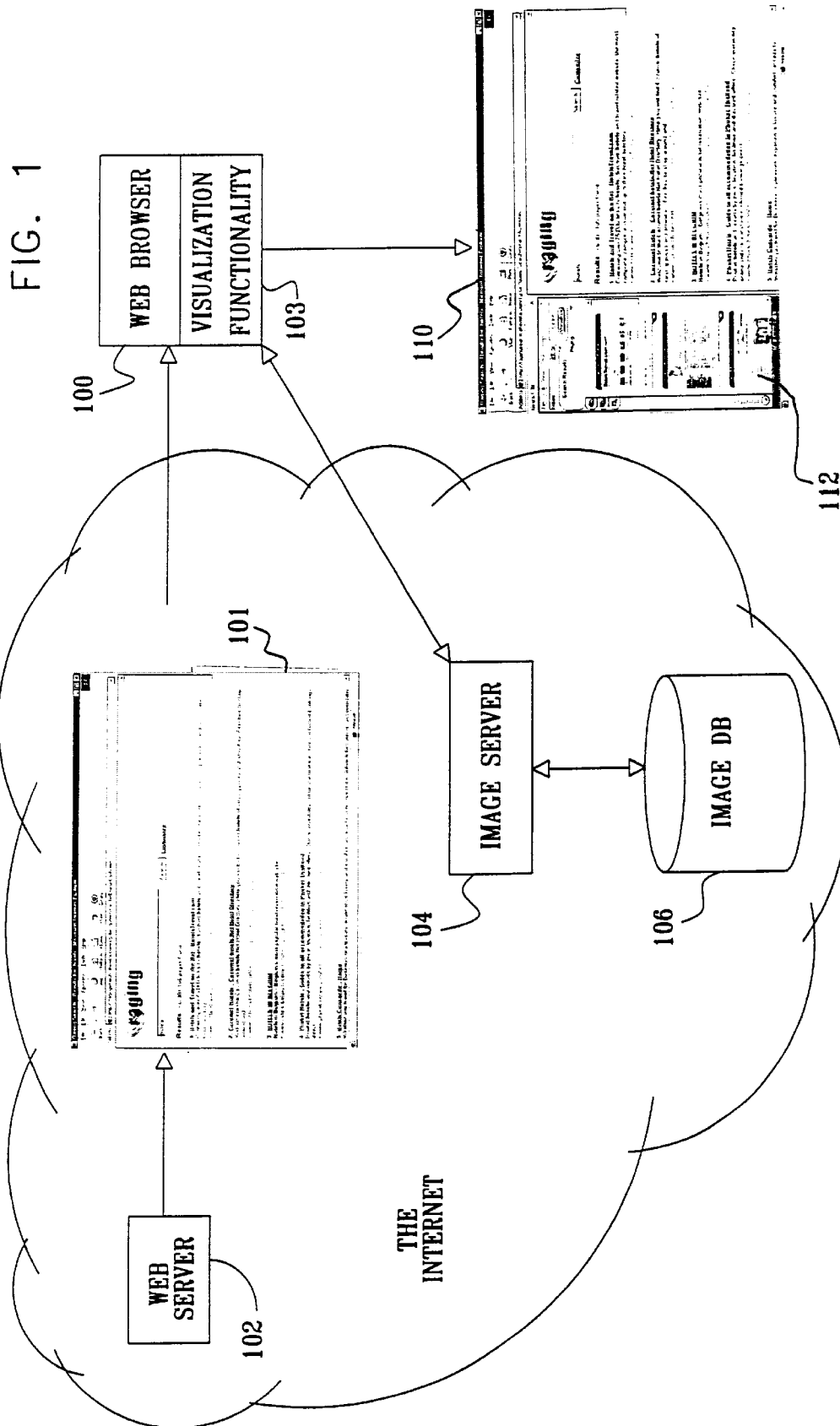


U.S. Patent

Mar. 8, 2005

Sheet 1 of 11

US 6,864,904 B1



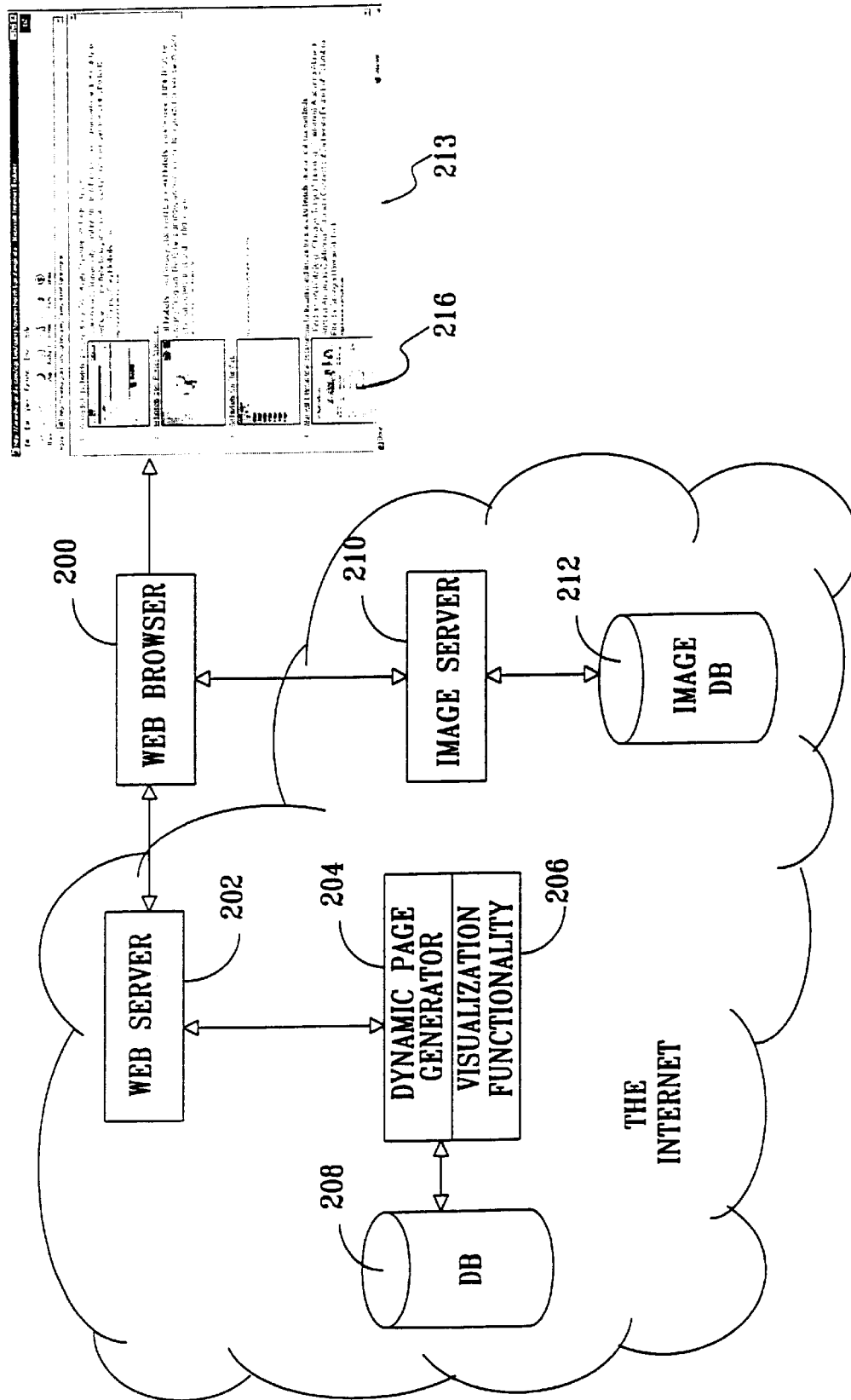
U.S. Patent

Mar. 8, 2005

Sheet 2 of 11

US 6,864,904 B1

FIG. 2



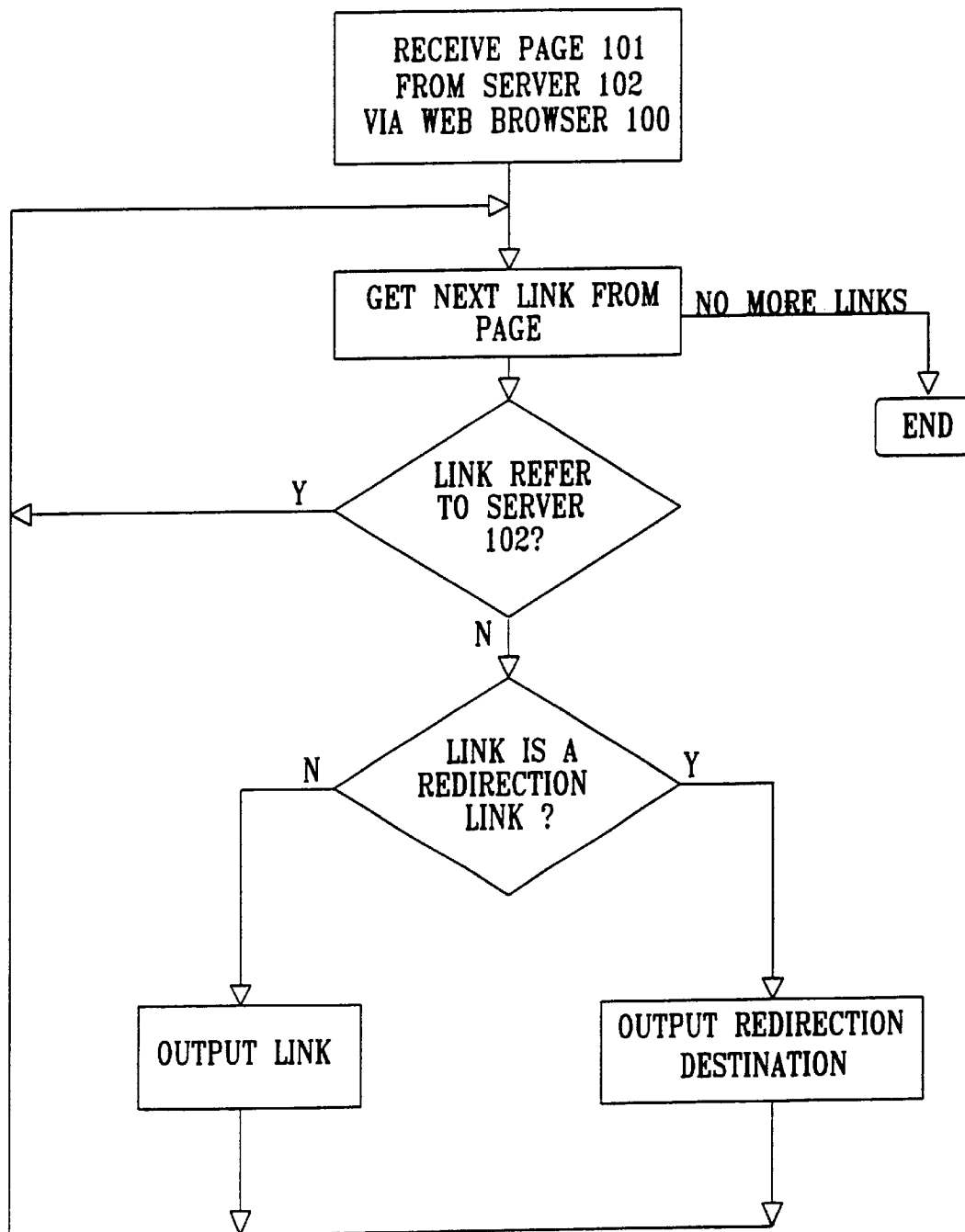
U.S. Patent

Mar. 8, 2005

Sheet 3 of 11

US 6,864,904 B1

FIG. 3



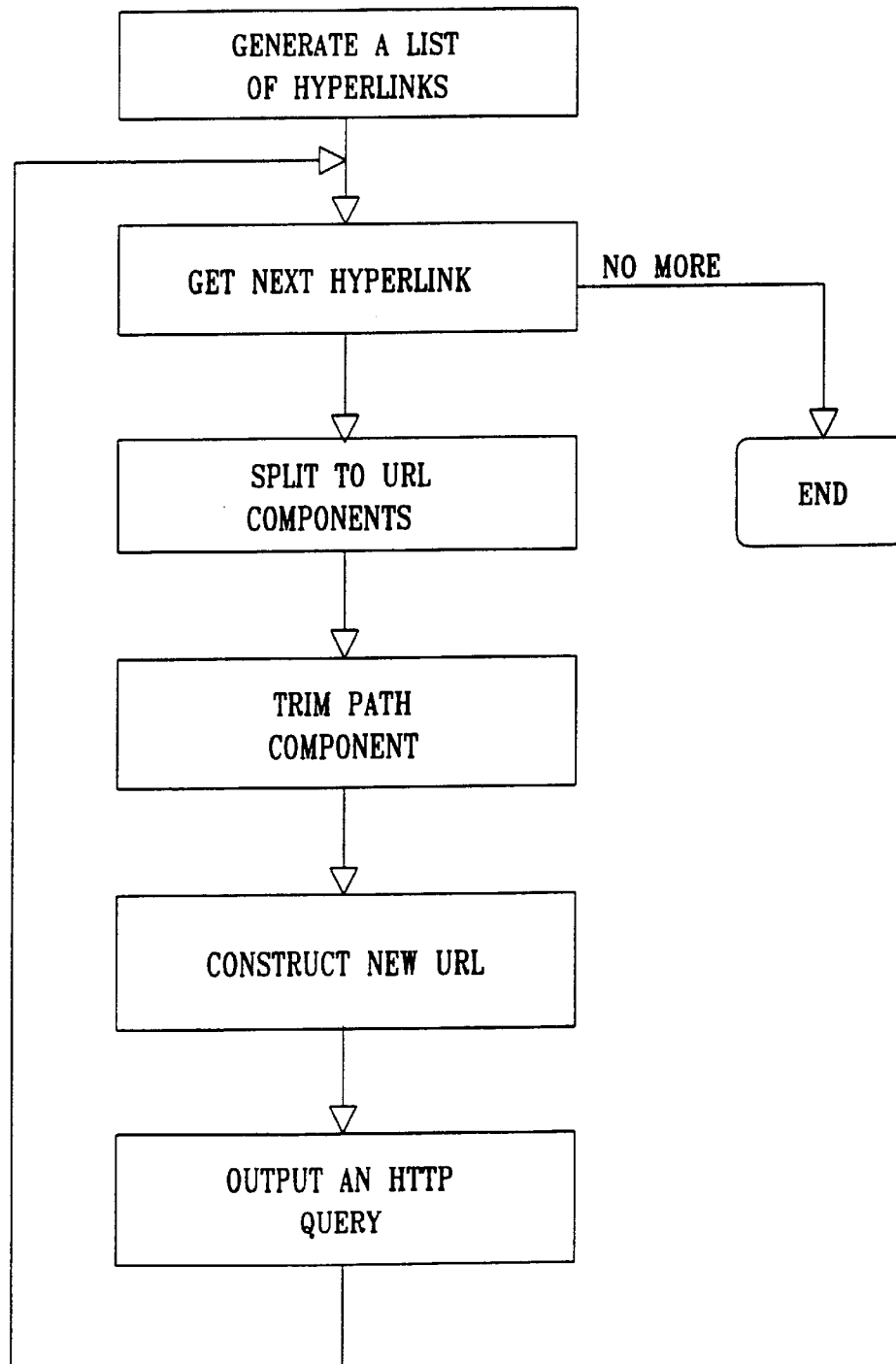
U.S. Patent

Mar. 8, 2005

Sheet 4 of 11

US 6,864,904 B1

FIG. 4



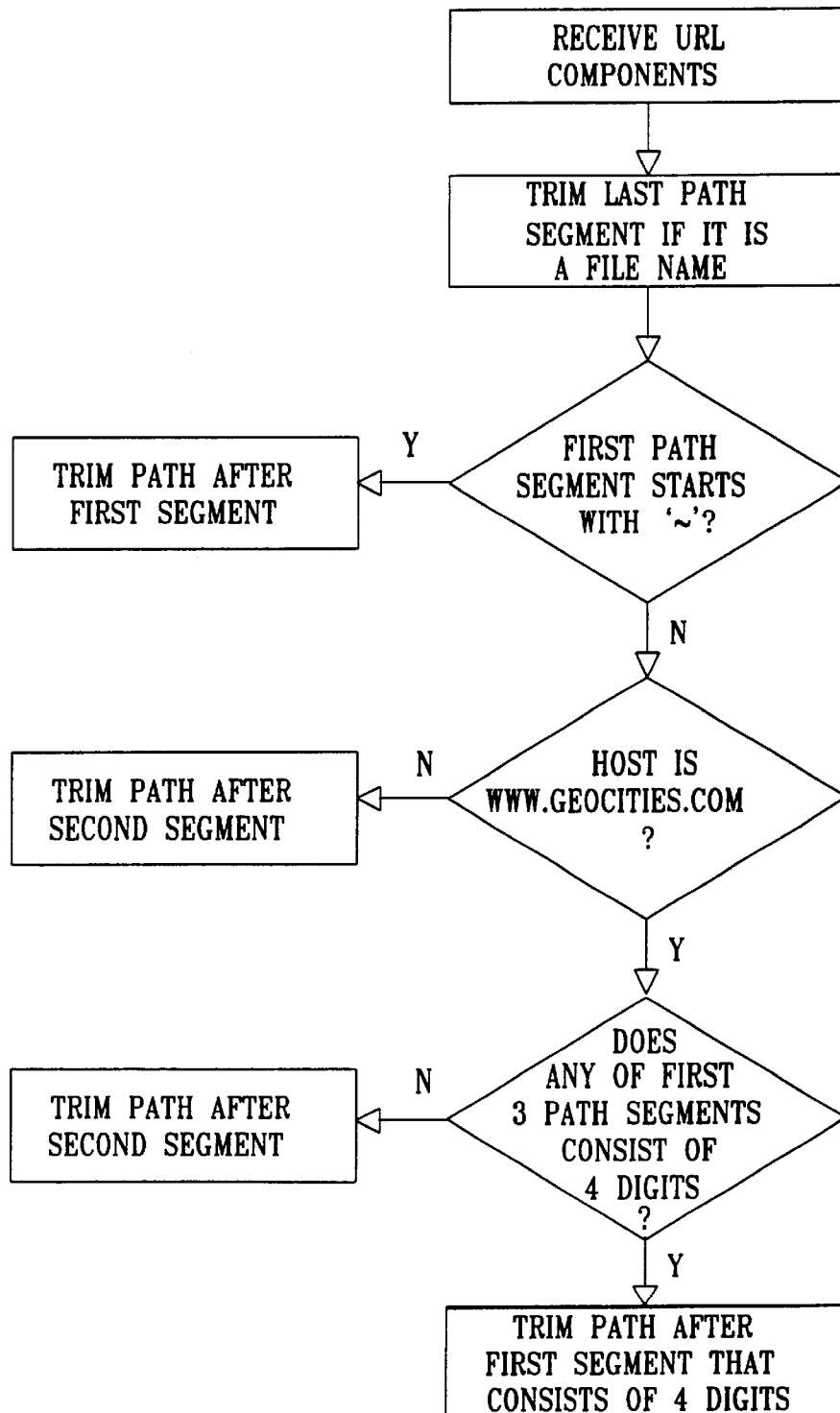
U.S. Patent

Mar. 8, 2005

Sheet 5 of 11

US 6,864,904 B1

FIG. 5



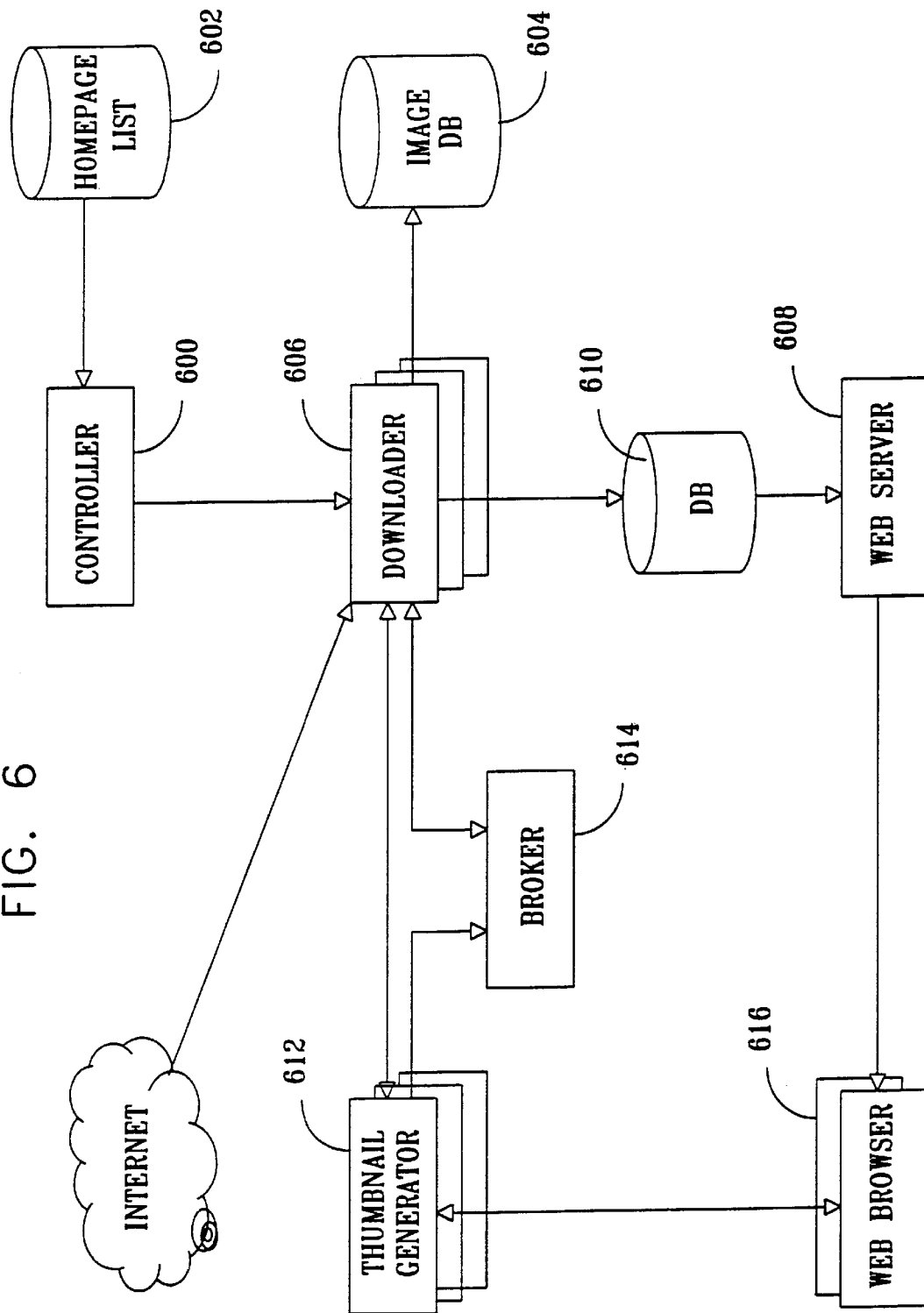
U.S. Patent

Mar. 8, 2005

Sheet 6 of 11

US 6,864,904 B1

FIG. 6



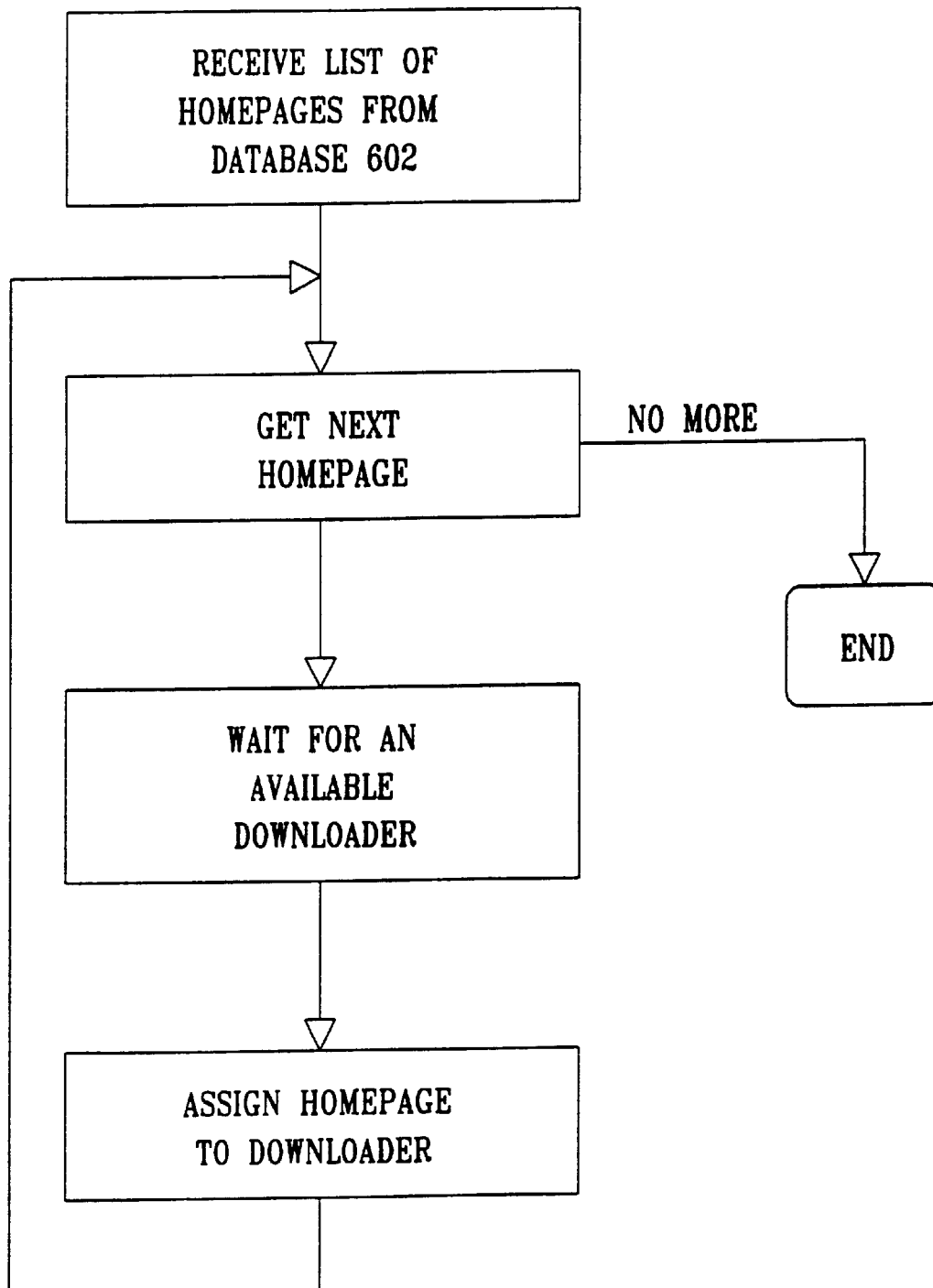
U.S. Patent

Mar. 8, 2005

Sheet 7 of 11

US 6,864,904 B1

FIG. 7



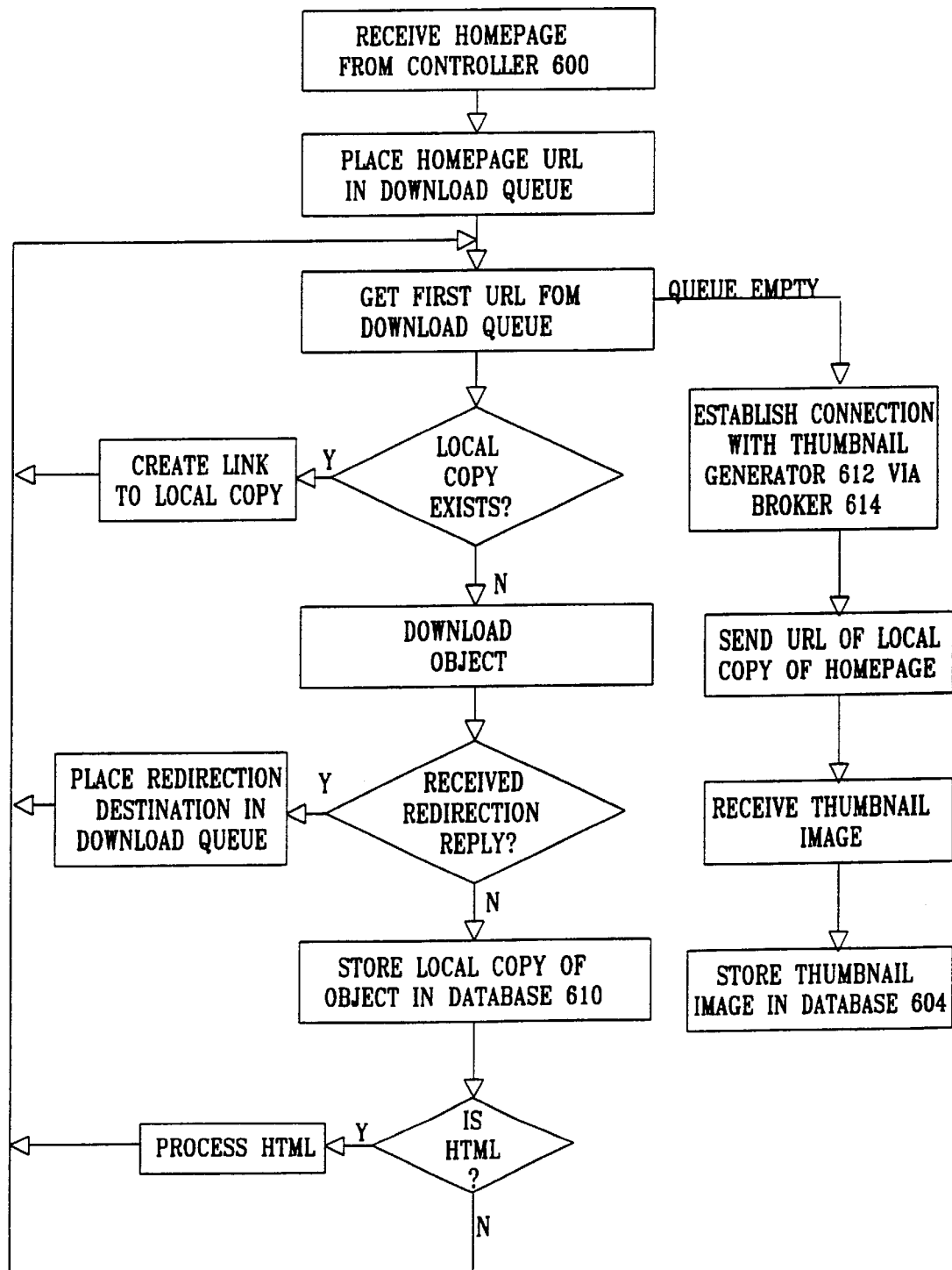
U.S. Patent

Mar. 8, 2005

Sheet 8 of 11

US 6,864,904 B1

FIG. 8



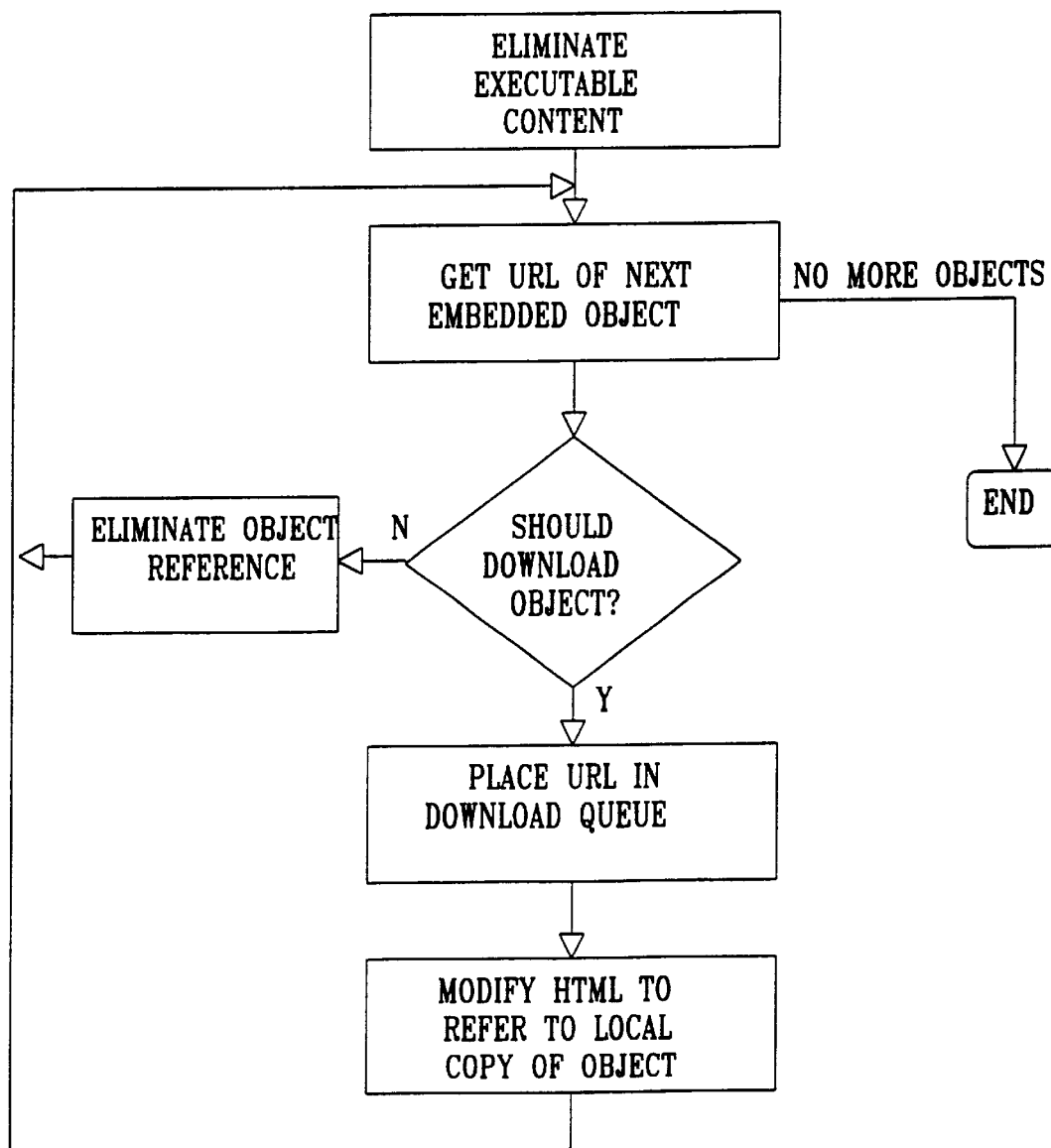
U.S. Patent

Mar. 8, 2005

Sheet 9 of 11

US 6,864,904 B1

FIG. 9



U.S. Patent

Mar. 8, 2005

Sheet 10 of 11

US 6,864,904 B1

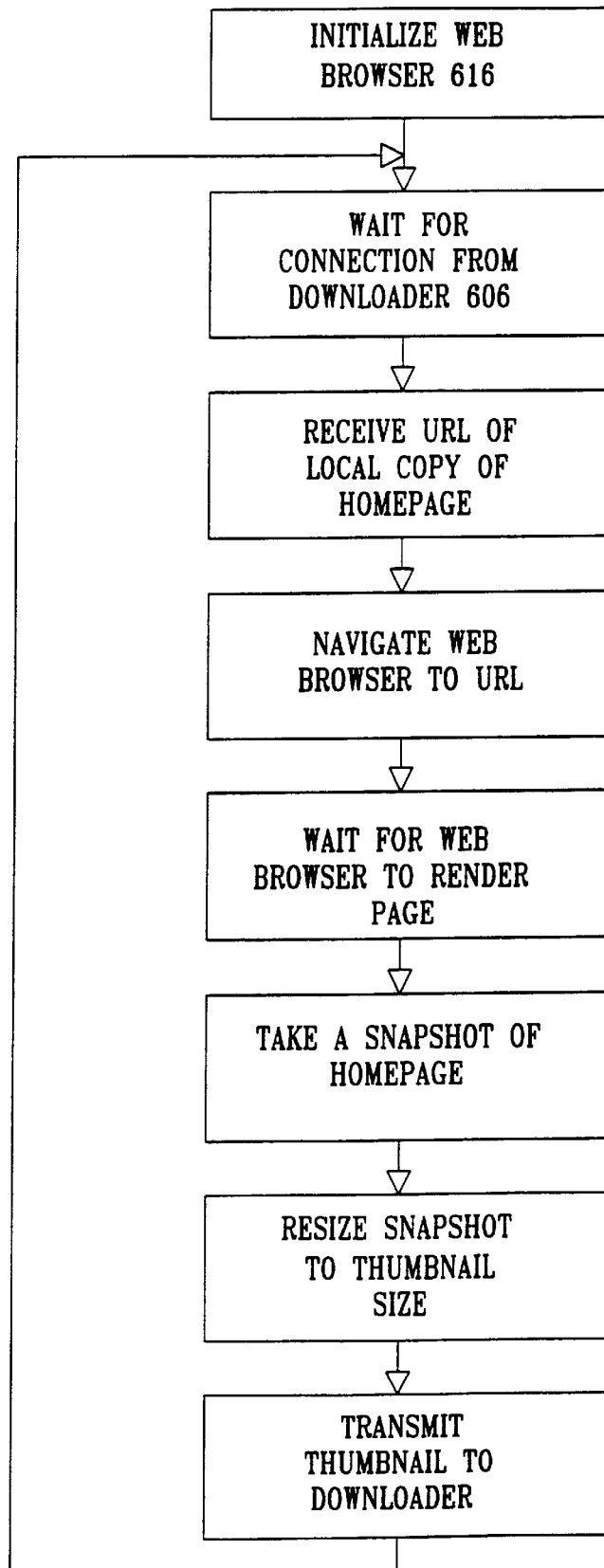


FIG. 10

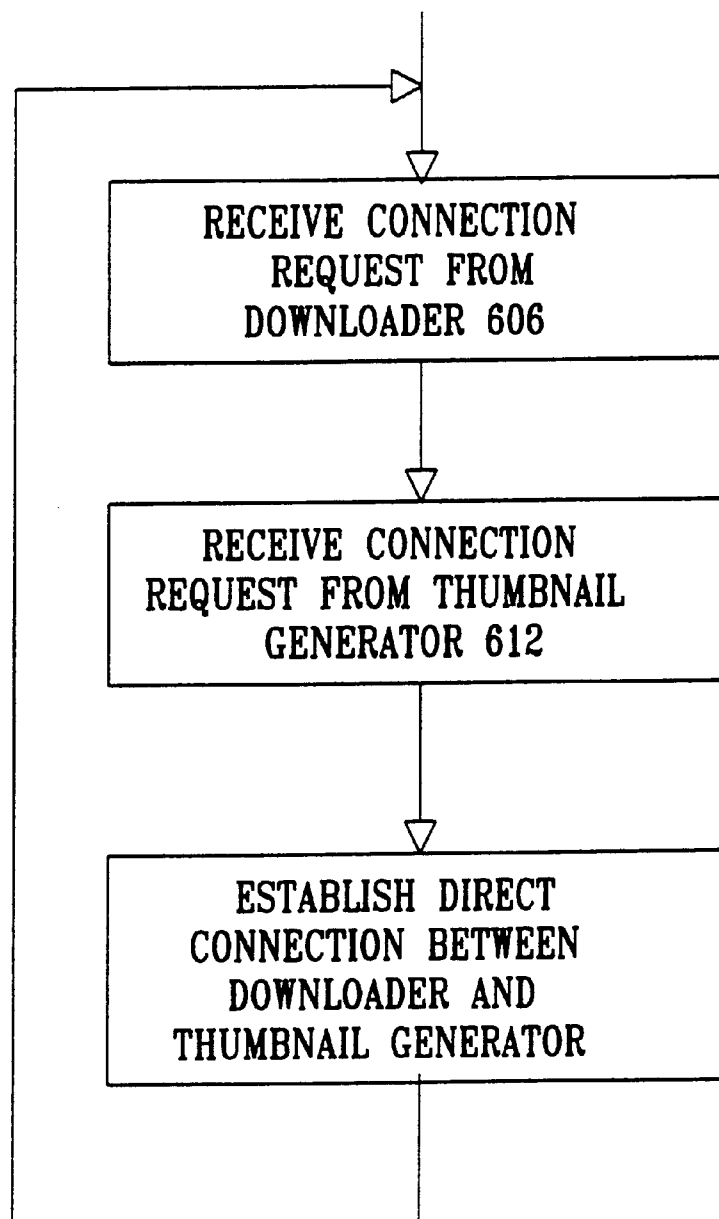
U.S. Patent

Mar. 8, 2005

Sheet 11 of 11

US 6,864,904 B1

FIG. 11



US 6,864,904 B1

1

**FRAMEWORK FOR PROVIDING VISUAL
CONTEXT TO WWW HYPERLINKS****PRIORITY CLAIM**

This application claims priority from Provisional Appli-
cation Ser. No. 60/169,328, filed Dec. 6, 1999.

The material on the compact discs labeled COPY 1 and
COPY 2 is incorporated by reference. The compact discs are
identified in the LIST OF APPENDICES below.

FIELD OF THE INVENTION

The present invention relates to Internet methodologies
and systems generally and more particularly to systems and
methodologies for displaying information received over the
Internet.

BACKGROUND OF THE INVENTION

The following U.S. patents are believed to represent the
current state of the art: U.S. Pat. Nos. 6,101,510; 6,016,494;
6,011,537; 5,973,692.

The following disclosures are also believed to be relevant
to the subject matter of the present invention:

R. J. Yarger, G. Reese, and T. King "MySQL & mSQL,"
O'REILLY & Associates Inc, 1999, ISBN 1-56592-
434-7;

B. Laurie, and P. Laurie "Apache the Definitive Guide,
2nd edition," O'REILLY & Associates Inc. 1999, ISBN
1-56592-528-9;

C. Musciano, and B. Kennedy "HTML the Definitive
Guide, 3rd edition," O'REILLY & Associates Inc,
1998, ISBN 1-56592-492-4;

Libwww <http://www.w3.org/Library>;

T. Berners-Lee, R. Fielding, and L. Masinter "Uniform
Resource Identifiers (URI): Generic Syntax", RFC
2396, August 1998.

SUMMARY OF THE INVENTION

The present invention seeks to provide a particularly
beneficial methodology and system for displaying informa-
tion received over the Internet.

There is thus provided in accordance with a preferred
embodiment of the present invention a method for present-
ing Internet information to a user. The method includes
providing to a user a visual image of a web page containing
at least one hyperlink, and at least partially concurrently
providing a visual image of another web page of at least one
web site which is represented by said at least one hyperlink.

Further in accordance with a preferred embodiment of the
present invention the visual image of said another web page
is displayed alongside the visual image of said web page.

Preferably the visual image of another web page appears
hovering over said hyperlink.

Still further in accordance with a preferred embodiment of
the present invention the visual image of said another web
page is displayed within the visual image of said web page.
The visual image of another web page appears hovering over
said hyperlink.

Additionally in accordance with a preferred embodiment
of the present invention the visual images of a plurality of
other web pages represented by at least one hyperlink are
displayed simultaneously along with said visual image of a
web page containing at least one hyperlink.

Furthermore in accordance with a preferred embodiment
of the present invention the web page comprises an HTML
page.

2

Moreover in accordance with a preferred embodiment of
the present invention, the method also includes providing a
visual image of another web page includes employing a web
browser including visualization functionality which inter-
faces via the Internet with an image server.

Preferably the visualization functionality is operative to
download via the image server from an image database
images of web pages which are referenced in hyperlinks
contained in the web page and to provide to a user, via the
web browser, an annotated web page.

Additionally or alternatively the annotated web page
includes the web page having alongside it images of home-
pages linked with the web page.

Further in accordance with a preferred embodiment of the
present invention, the method includes providing a visual
image of another web page and includes employing a web
browser which interfaces via the Internet with a web server
including visualization functionality.

Preferably the visualization functionality operates to
embed commands to the web browser to download, via an
image server, images of web pages which are referenced in
hyperlinks contained in the web page and to provide to a
user, via the web browser, an annotated web page.

Additionally the annotated web page may include the web
page having within it images of homepages linked with the
web page.

Additionally in accordance with a preferred embodiment
of the present invention the visualization functionality
includes generation of a list of hyperlinks from a web page,
elimination of links which refer back to a web server sending
said web page, determination of whether redirection links
are present and if so, visualizing an ultimate destination
thereof and visualizing remaining hyperlinks.

Further in accordance with a preferred embodiment of the
present invention the visualization functionality may also
include receiving a list of hyperlinks, splitting a URL of each
hyperlink into URL components including at least a path
component and a host component, trimming a path compo-
nent based on the consideration of finding the most repre-
sentative image of a given web page and constructing a new
URL including a trimmed path component.

There is also thus provided in accordance with a preferred
embodiment of the present invention a method for generat-
ing a web page image database. The method includes
receiving a list of URLs corresponding to web pages, the
images of which it is desired to download into an image
database, operating a multiplicity of downloaders simulta-
neously by supplying to each downloader one URL at a time,
causing each downloader to retrieve from the Internet, a web
page and embedded objects corresponding to the URL
supplied to it, causing a thumbnail generator to render the
web page and causing said thumbnail generator to shrink
said rendered image of the web page and supply it to the
downloader.

Further in accordance with a preferred embodiment of the
present invention the method also includes deleting execut-
able content from the web page.

Still further in accordance with a preferred embodiment of
the present invention the method includes causing each
downloader to retrieve from the Internet, a web page and
embedded objects corresponding to the URL supplied to it
and causing a thumbnail generator to operate a correspond-
ing web browser to render the web page employ a locally
stored copy of said web page and said embedded objects.

Additionally in accordance with a preferred embodiment
of the present invention the method includes employing a

US 6,864,904 B1

3

web server for providing said locally stored copy of said web page and of said embedded objects to said web browser.

Furthermore in accordance with a preferred embodiment of the present invention the visual image of another web page appears hovering over said hyperlink.

There is further provided in accordance with another preferred embodiment of the present invention a system for presenting Internet information to a user including a first functionality providing to a user a visual image of a web page containing at least one hyperlink and a second functionality operative at least partially concurrently with said first functionality for providing a visual image of another web page of at least one web site which is represented by said at least one hyperlink.

Further in accordance with a preferred embodiment of the present invention the visual image of said another web page is displayed alongside the visual image of said web page.

Still further in accordance with a preferred embodiment of the present invention the visual images of said another web page is displayed within the visual image of said web page.

Furthermore in accordance with a preferred embodiment of the present invention the visual images of a plurality of other web pages represented by at least one hyperlink are displayed simultaneously along with said visual image of a web page containing at least one hyperlink.

Additionally in accordance with a preferred embodiment of the present invention the web page comprises an HTML page.

Further in accordance with a preferred embodiment of the present invention the second functionality comprises third functionality employing a web browser including visualization functionality which interfaces via the Internet with an image server.

Preferably the visualization functionality is operative to download via the image server from an image database images of web pages which are referenced in hyperlinks contained in the web page and to provide to a user, via the web browser, an annotated web page. Additionally or alternatively the annotated web page includes the web page having alongside it images of homepages linked with the web page.

Further in accordance with a preferred embodiment of the present invention the second functionality comprises fourth functionality employing a web browser which interfaces via the Internet with a web server including visualization functionality.

Preferably the visualization functionality is operative to embed commands to the web browser to download, via an image server, images of web pages which are referenced in hyperlinks contained in the web page and to provide to a user, via the web browser, an annotated web page. Additionally or alternatively the annotated web page includes the web page having within it images of homepages linked with the web page.

Further in accordance with a preferred embodiment of the present invention the visualization functionality includes the generation of a list of hyperlinks from a web page, the elimination of links which refer back to a web server sending said web page, the determination of whether redirection links are present and if so, visualizing an ultimate destination thereof and the visualizing remaining hyperlinks.

Still further in accordance with a preferred embodiment of the present invention the visualization functionality includes receiving a list of hyperlinks, splitting a URL of each hyperlink into URL components including at least a path

4

component and a host component, trimming a path component based on the consideration of finding the most representative image of a given web page and constructing a new URL including a trimmed path component.

Furthermore in accordance with a preferred embodiment of the present invention the visual image of another web page appears hovering over said hyperlink.

Additionally in accordance with a preferred embodiment of the present invention the visual image of another web page appears hovering over said hyperlink.

Additionally or alternatively the visual image of another web page appears hovering over said hyperlink. Preferably the visual image of another web page appears hovering over said hyperlink.

Furthermore the visual image of another web page may appear to hover over said hyperlink.

Still further in accordance with a preferred embodiment of the present invention the visual image of another web page appears hovering over said hyperlink.

There is provided in accordance with yet another preferred embodiment of the present invention a system for generating a web page image database, the system includes at least one downloader receiving one URL at a time and retrieving from the Internet a web page and embedded objects corresponding to the URL received by it and at least one thumbnail generator operative to render the web page, shrink said rendered image of the web page and supply said rendered image to the downloader.

Further in accordance with a preferred embodiment of the present invention the at least one downloader is operative to delete executable content from the web page.

Still further in accordance with a preferred embodiment of the present invention each downloader retrieves from the Internet, a web page and embedded objects corresponding to the URL received by it and locally stores a copy of said web page and said embedded objects and causes said thumbnail generator to render the web page by employing said locally stored copy of said web page and said embedded objects.

Preferably the system also includes a web server providing said locally stored copy of said web page and of said embedded objects.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will be understood and appreciated more fully from the following detailed description, taken in conjunction with the drawings in which:

FIG. 1 is a simplified partially pictorial, partially block diagram illustration of a system and methodology for displaying information received over the Internet in accordance with a preferred embodiment of the present invention;

FIG. 2 is a simplified partially pictorial, partially block diagram illustration of a system and methodology for displaying information received over the Internet in accordance with another preferred embodiment of the present invention;

FIG. 3 is a simplified flow chart of part of visualization functionality employed in the system and methodology of FIG. 1;

FIG. 4 is a simplified flow chart of visualization functionality employed in accordance with a preferred embodiment of the present invention;

FIG. 5 is a simplified flow chart of path component trimming functionality employed in the embodiment of FIG. 3;

FIG. 6 is a simplified block diagram illustration of a system for generating an image database useful in the system and methodology of FIGS. 1 and 2;

US 6,864,904 B1

5

FIG. 7 is a flow chart illustrating operation of a controller forming part of the system of FIG. 6;

FIG. 8 is a flow chart illustrating operation of a downloader forming part of the system of FIG. 6;

FIG. 9 is a flow chart illustrating operation of a process HTML algorithm employed in the downloader of FIG. 8;

FIG. 10 is a flow chart illustrating operation of a thumbnail generator forming part of the system of FIG. 6; and

FIG. 11 is a flow chart illustrating operation of a broker forming part of the system of FIG. 6.

LIST OF APPENDICES

Appendix A is a software listing in hexadecimal form of software suitable for providing the visualization functionality of FIG. 1 when installed in accordance with installation instructions set forth hereinbelow;

Appendix B is a software listing in hexadecimal form of software suitable for providing the functionality of FIG. 6 when installed in accordance with installation instructions set forth hereinbelow;

Appendix C is a software listing in hexadecimal form of software suitable for providing the functionality of an image server of FIG. 1 and FIG. 2 when installed in accordance with installation instructions set forth hereinbelow.

The foregoing software listing are protected by copyright in the USA and in all other jurisdictions.

Appendix A, Appendix B and Appendix C are included on Copy 1 and Copy 2 of the CD-Rs attached herewith to the present application. Each CD-R includes the files GIRAF.A.hex (Appendix A) of Nov. 7, 2000 and of length 3,052,711 bytes; ARANHA.hex (Appendix B) of Nov. 7, 2000 and of length 5,498,984 bytes and IMAGE.hex (Appendix C) of Nov. 7, 2000 and of length 217,154 bytes.

DESCRIPTION OF PREFERRED EMBODIMENTS

Reference is now made to FIG. 1, which is a simplified partially pictorial, partially block diagram illustration of a system and methodology for displaying information received over the Internet in accordance with a preferred embodiment of the present invention. As seen in FIG. 1, a web browser 100, such as Microsoft Internet Explorer 5.5, typically resident on a PC, such as a Dell Dimension L733 running Microsoft Windows 98, receives a web page 101, such as an HTML page, over the Internet from a web server 102. The web browser 100 preferably includes visualization functionality 103 which interfaces, typically via the Internet, with an image server 104, such as a Dell Power Edge 2450 running Apache 1.3.12 on an OpenBSD 2.7 operating system.

The image server 104 interfaces with an image database 106, which is preferably a Dell Power Edge 2450 running MySQL 3.23.25 on an OpenBSD 2.7 operating system which is preferably loaded by using functionality of the type described hereinbelow with reference to FIG. 7.

The visualization functionality 103 is operative to download via the image server 104 from the image database 106 images of web pages which are referenced in hyperlinks contained in the web page 101 and to provide to a user, via the web browser 100, an annotated web page 110, which preferably includes the web page 101 having alongside it images 112 of homepages linked with web page 101.

Reference is now made to FIG. 2, which is a simplified partially pictorial, partially block diagram illustration of a

6

system and methodology for displaying information received over the Internet in accordance with another preferred embodiment of the present invention. As seen in FIG. 2, a web browser 200, typically resident on a PC, such as a Dell Dimension L733 running Microsoft Windows 98, interfaces, typically via the Internet, with a web server 202, such as a Dell Power Edge 2450 running Apache 1.3.12 on an OpenBSD 2.7 operating system.

The web server 202 interfaces with a dynamic page generator 204, such as a P.H.P. 4.0.2, in which is preferably installed a visualization functionality 206, which is described hereinbelow in greater detail. The dynamic page generator 204 interfaces with a database 208, such as a Dell Power Edge 2450 running MySQL 3.23.25 on an OpenBSD 2.7 operating system.

The web browser 200 preferably interfaces with an image server 210, such as a Dell Power Edge 2450 running Apache 1.3.12 on an OpenBSD 2.7 operating system. The image server 210 interfaces with an image database 212, which is preferably a Dell Power Edge 2450 running MySQL 3.23.25 on an OpenBSD 2.7 operating system, which is preferably loaded by using functionality of the type described hereinbelow with reference to FIG. 7.

The visualization functionality 206 is operative to embed within a dynamically generated web page, such as an HTML page, commands to the web browser 200 to download via the image server 210 from the image database 212 images of web pages which are referenced in hyperlinks contained in a web page 213 and to provide to a user, via the web browser 200, the web page 213 annotated to include therewithin images 216 of homepages linked therewith.

It is appreciated that either or both of the embodiments of FIGS. 1 and 2 may provide images of web pages which are referenced in hyperlinks contained in a web page either alongside or within that web page. It is also appreciated that either or both of the embodiments FIGS. 1 and 2 may provide images of web pages which are referenced in hyperlinks contained in a web page, which images hover either over or alongside the hyperlinks. It is appreciated that the visual image of another web page may function as a hyperlink.

Reference is now made to FIG. 3, which is a simplified flow chart of part of visualization functionality employed in the system and methodology of FIG. 1. The flow chart of FIG. 3 illustrates generation of a list of hyperlinks from a web page, such as web page 101 in the embodiment of FIG. 1 received from a web server 102.

As each link is extracted from web page 101, an examination is made in order to eliminate links which refer back to web server 102 and to determine whether redirection links are present. This is typically done by searching for the presence of a string "http://" encoded in the URL, which characterizes a redirection link. In the case of links, which appear to be redirection links, only the ultimate destination is listed. In the case of links which do not appear to be redirection links, the links themselves are listed. The resulting list is employed as an input to the functionality of FIG. 4.

In the illustrated embodiment of FIG. 3, all of the hyperlinks are processed. Alternatively, not all of the hyperlinks need be processed. In such a case, a user may decide which hyperlinks to process.

Reference is now made to FIG. 4, which is a simplified flow chart of visualization functionality employed in accordance with a preferred embodiment of the present invention. As seen in FIG. 4, a list of hyperlinks is received. This list

US 6,864,904 B1

7

may be derived from a web page such as web page **101** in the embodiment of FIG. **1** using the functionality of FIG. **3** or may be provided by dynamic page generator **204** and obtained via database **208** in the embodiment of FIG. **2**.

If hyperlinks are present, the URL of each hyperlink is split into URL components. For example, if the URL of a hyperlink appears as follows:

`http://www.microsoft.com:80/windows2000/upgrade/compat/search/computers.asp?page=2&send=1&Order=Sort+by+Company&CN=Dell&PN=&PT=`

The components thereof include the following:

Scheme: http

Host: www.microsoft.com

Port: 80

Path: /windows2000/upgrade/compat/search/computers.asp

Query: page=2&send=1&Order=Sort+by+Company&CN=Dell&PN=& PT=

The path component may be trimmed based on the consideration of finding the most representative image of a given web page. A flow chart illustrating a preferred algorithm for making this determination appears in FIG. **5** and is described hereinbelow.

Thus, in the above example, the trimmed path component appears as follows:

`/windows2000/upgrade`

Following any trimming of the path component, a new URL is constructed from the scheme, host, port and trimmed path components. This URL is employed for outputting an http query to an image server, such as image server **104** in the embodiment of FIG. **1** or **210** in the embodiment of FIG. **2**.

A preferred form of http query in the above example appears as follows:

`http://wb1.girafa.com/srv/i?`

`u=http://`

`www.microsoft.com%2fwindows2000%2fupgrade`

Reference is now made to FIG. **5**, which is a simplified flow chart of path component trimming functionality employed in the embodiment of FIG. **4**. As seen in FIG. **5**, the path component trimming functionality comprises receipt of the URL components after splitting thereof, as described hereinabove with reference to the flowchart of FIG. **4**. Information from the host component of the URL is employed in trimming of the path component of the URL. Each path component comprises a plurality of path segments.

If the last path segment in a path component is a file name, this path segment is removed. Determination whether a path component is a file name is typically carried out by examining the suffix thereof to determine whether it is a known suffix representing a file name.

If the first path segment starts with a "~", which typically designates a home directory in a Unix system, the path component is trimmed after that first path segment.

If the host is not www.geocities.com, the path component is trimmed after the second path segment.

If the host is www.geocities.com and any of the first three path segments consists of 4 digits, the path component is trimmed after the first segment that consists of 4 digits.

If the host is % www.geocities.com and none of the first three path segments consists of 4 digits, the path component is trimmed after the second segment.

Reference is now made to FIG. **6**, which is a simplified block diagram illustration of a system for generating an image database useful in the system and methodology of FIGS. **1** and **2**. As seen in FIG. **6**, a controller **600** receives a list **602** of homepages, the images of which it is desired to

8

download into an image database **604**, such as image database **106** in the embodiment of FIG. **1** or image database **212** in the embodiment of FIG. **2**.

The controller **600** operates a multiplicity of downloaders **606** simultaneously by supplying to each downloader one URL at a time. Each downloader **606** retrieves from the Internet, the homepage and the embedded objects corresponding to the URL supplied to it by the controller **600** and deletes therefrom executable block content. The resulting output of the downloaders **606** is supplied to a web server **608** via a database **610**.

Each downloader **606** establishes a connection with one of a plurality of thumbnail generators **612** via a broker **614**. Once this connection has been established, a URL of a locally stored copy of a downloaded homepage, which is stored in database **610**, is sent to the thumbnail generator **612** with which the connection has been established.

Each thumbnail generator **612** operates a corresponding web browser **616** to download via web server **608** the locally stored copy of the homepage, which is stored in database **610**. The thumbnail generators **612** each receive a rendered image of the homepage from a corresponding web browser **616** and shrink it and supply it to the downloader **606** with which the connection has been established.

It is appreciated that normally the number of downloaders exceeds the number of thumbnail generators by at least an order of magnitude. The broker **614** coordinates interaction between a thumbnail generator and a downloader.

Reference is now made to FIG. **7**, which is a flow chart illustrating operation of a controller forming part of the system of FIG. **6**. A list of homepages is received from database **602** (FIG. **6**). Each homepage is taken from the list and downloaded by a downloader **606** (FIG. **6**). The functionality of FIG. **7** ensures that a predetermined number of downloaders operate simultaneously, so long as the list of undownloaded homepages is sufficiently long.

Reference is now made to FIG. **8**, which is a flow chart illustrating operation of a downloader forming part of the system of FIG. **6**. As seen in FIG. **8**, each downloader maintains a download queue for the homepage which the downloader is currently downloading. The download queue includes a list of URLs of objects in the homepage as well as the homepage object that require downloading in order to provide a local copy of the homepage.

For each URL in the download queue, an inquiry is made whether a local copy of the object corresponding thereto already exists. If so, a link to that local copy is created. If not, an attempt is made to download the object. If upon attempting to download the object, the downloader is informed that the object is located on another URL. i.e. by the receipt of redirection reply, that URL is placed in the download queue.

If, the download is successful, the downloaded object is stored in database **610** (FIG. **6**) as a local copy. If the downloaded object is an HTML page, then the HTML page is processed, preferably by an algorithm of the type described hereinbelow in FIG. **9**.

When the download queue is empty, a connection is established with thumbnail generator **612** (FIG. **6**) via broker **614** (FIG. **6**). The URL of the local copy of the homepage object is sent to the thumbnail generator **612** and a thumbnail image of the homepage is generated hereby. This thumbnail image is stored in image database **604** (FIG. **6**).

Reference is now made to FIG. **9**, which is a flow chart illustrating operation of a process HTML algorithm employed in the downloader of FIG. **8**. The HTML object

US 6,864,904 B1

9

which is downloaded is scanned, the executable content thereof is eliminated and embedded objects therein are recognized.

For each embedded object a decision is made whether to download it. This decision is made based on the nature of the embedded object and the nature of the reference thereto. Generally, images and HTML objects are downloaded.

URLs of objects to be downloaded are placed in the download queue referred to hereinabove in connection with FIG. 8 and the HTML object is modified to refer to the local copies of the objects to be downloaded. References to objects not to be downloaded are eliminated from the HTML object.

Reference is now made to FIG. 10, which is a flow chart illustrating operation of a thumbnail generator, such as thumbnail generator 612, forming part of the system of FIG. 6. Initially, the thumbnail generator initializes a web browser functionality 616 (FIG. 6). When a connection is established to the thumbnail generator 612 from a downloader 606 (FIG. 6) via a broker 614 (FIG. 6), the thumbnail generator 612 receives the URL of the local copy of the homepage.

The web browser navigates to that URL and renders the homepage. A snapshot of the homepage is taken, typically in bitmap form. This snapshot is resized to a desired thumbnail size and is then transmitted via the downloader 606 for storage in image database 604.

Reference is now made to FIG. 11, which is a flow chart illustrating operation of a broker, such as broker 614, forming part of the system of FIG. 6. The broker receives connection requests from both thumbnail generators 612 (FIG. 6) and downloaders 606 (FIG. 6). When simultaneous requests are pending from both a thumbnail generator and a downloader, the broker establishes a direct connection therebetween. When there exists a surplus of connection requests from either thumbnail generators 612 or downloaders 606, queues of such connection requests may be maintained by the broker.

A preferred method for constructing A Framework For Providing Visual Context To WWW Hyperlinks in accordance with a preferred embodiment of the present invention includes the following steps:

1. Generate Binary file GIRAFA.hex from the computer listing of Appendix A.
2. Decode GIRAFA.hex using a MIME compliant decoder, creating Girafa-1-45.exe.

The method for starting the visualization functionality of FIG. 1 with the program in Appendix A includes the following steps:

1. Provide a computer terminal such as an Intel-based Pentium III 800 MHz computer, configured with Microsoft Windows 98 operating system, and Internet Explorer 5.5 Web Browser.
2. Load the file Girafa-1-45.exe to a temporary directory in the computer terminal provided in step 1, Execute the file Girafa-1-45.exe, and follow the installation instructions. When asked to register, press 'cancel'.
3. Edit the file Girafa.ini in the installation directory, replacing every occurrence of the string 'aranja.girafa.com' with the hostname of the image server, and every occurrence of the number 8080 with the number 80.
4. Start the Internet Explorer browser.
5. In the Internet Explorer Window select the View Menu, in it select the Explorer Bars sub-menu, and in it choose GirafaBar.
6. Follow the registration procedure.

A further preferred method for constructing A Framework For Providing Visual Context To WWW Hyperlinks in

10

accordance with a preferred embodiment of the present invention includes the following steps:

1. Generate Binary file ARANHA.hex from the computer listing of Appendix B.

2. Decode ARANHA.hex using a MIME compliant decoder, creating aranha.tgz.

The method for providing the functionality of FIG. 6 with the program in Appendix B includes the following steps:

1. Provide a computer server such as a Dell PowerEdge 2450, with at least 1 GB of main memory, configured with OpenBSD 2.7 operating system, and MySQL 3.23.25 database, and connected to the Internet.

2. Create the directory /var/www/httpd/collect.

3. Create the directory /data1.

4. In /data1 extract the file aranha.tgz by using the command 'tar xvfz aranha.tgz', creating /data1/aranja/aranja.conf, /data1/aranja/capture.zip, /data1/aranja/db.def, /data1/aranja/mod_asis.so, /data1/aranja/bin, /data1/aranja/bin/broker, /data1/aranja/bin/controller, /data1/aranja/bin/downloader, /data1/aranja/bin/downloader.real, and a skeleton image directory /data1/aranja/images.

5. Edit the file /data1/aranja/aranja.conf, replacing the string <SERVER_IP_ADDRESS> with the server's IP address, the string <DBUSER> with a MySQL username that have full access to

database named DATA, and the string <DBPASSWORD> with the password of that user.

6. Create the MySQL database, and initialize it by running the MySQL script /data1/aranja/db.def.

7. Set the environment variable ARANHA_CONF to /data1/aranja/aranja.conf.

8. Execute, in the background, the program /data1/aranja/bin/broker.

9. Install the apache module mod_asis.so by changing directory to /data1/aranja, and executing the command 'apxs -a -i mod_asis.so'.

10. Set the handle_asis as the Apache web server handler for files with suffix '.y'.

11. Start the Apache web server.

12. Provide a computer server such as a Dell PowerEdge 2450, with a display adapter capable of displaying a resolution of 1600x1280x32, such as an ATI ALL-IN-WONDER 128 32MB PCI, and an ethernet adapter such as a Netgear FA310TX, configured with Windows NT Workstation 4.0 SP4, connected via Ethernet to the computer server provided in step 1.

13. Transfer the file data1/aranja/capture.zip to the computer server provided in step 12.

14. Extract capture.zip using a WinZip 7.0 compliant decoder, to the directory c:\appl, creating c:\appl\1Source.dll, c:\app\CaptureWeb.exe, c:\appl\CaptureWeb.ini, c:\app\Mfc42d.dll, c:\app\Mfc42d.dll, c:\app\Mfc42d.dll, c:\app\Msvcrtd.dll, c:\appl\runCaptureWeb.exe.

15. Edit the file c:\app\CaptureWeb.ini replacing the string <SERVER_IP_ADDRESS> with the IP address of the OpenBSD server as provided by Step 1.

16. Execute the application c:\app\runCaptureWeb.exe.

17. Create a list of hostnames the thumbnail of their home pages is to be created, and store in the file /tmp/list.

18. Execute the application /data1/aranja/bin/controller to download the thumbnail images of hosts listed in /tmp/list by running the command '/data1/aranja/bin/controller/tmp/list'.

Another preferred method for constructing A Framework For Providing Visual Context To WWW Hyperlinks in accordance with a preferred embodiment of the present invention includes the following steps:

US 6,864,904 B1

11

1. Generate Binary file IMAGE.hex from the computer listing of Appendix C.
2. Decode IMAGE.hex using a MIME compliant decoder, creating image_server.tgz.

The method for providing the functionality of an image server of FIGS. 1 and 2 includes the following steps:

1. Provide a computer server such as a Dell PowerEdge 2450, with at least 1 GB of main memory, configured with OpenBSD 2.7 operating system. MySQL 3.23.25 database, and an image database created by the software provided in Appendix B, and Connected to the Internet.
2. Extract the binary file of Appendix C using the command 'tar xvfz image_server.tgz', creating the directories image_server and image_server/errs, and the files image_server/aranha.conf, image_server/mod_girafa.so, image_server/errs/empty, and image_servers/errs/notFL.gif
3. Change directory to image_server
4. Install the apache module mod_girafa.so by executing the command 'apxs -a -i mod_girafa.so'
5. copy the file aranha.conf to /data1/aranha/aranha.conf
6. Create the directory /var/www/htdocs/errs
7. Copy the files errs/empty and errs/notFL.gif to /var/www/htdocs/errs
8. Start the apache web server.

It will be appreciated by persons skilled in the art that the present invention is not limited by what has been particularly shown and described hereinabove. Rather the scope of the present invention includes both combinations and sub-combinations of the various features described hereinabove as well as variations and modifications which would occur to persons skilled in the art upon reading the specification and which are not in the prior art.

What is claimed is:

1. A method for presenting Internet information to a user comprising:

providing to a user a visual image of a web page containing at least one hyperlink; and at least partially concurrently

providing a thumbnail visual image of the home page of at least one web site which is represented by said at least one hyperlink via the Internet by employing an image server that stores and provides said thumbnail visual image.

2. A method according to claim 1 and wherein said thumbnail visual image is displayed alongside the visual image of said web page.

3. A method according to claim 2 and wherein said thumbnail visual image appears hovering over said hyperlink.

4. A method according to claim 1 and wherein said thumbnail visual image is displayed within the visual image of said web page.

5. A method according to claim 4 and wherein said thumbnail visual image appears hovering over said hyperlink.

6. A method according to claim 1 and wherein a plurality of thumbnail visual images represented by at least one hyperlink are displayed simultaneously along with said visual image of a web page containing at least one hyperlink.

7. A method according to claim 1 and wherein said web page comprises an HTML page.

8. A method according to claim 1 and wherein said providing a-thumbnail visual image comprises:

employing a web browser including visualization functionality which interfaces via the Internet with said image server.

12

9. A method according to claim 8 and wherein said visualization functionality is operative to download via the image server from an image database images of web pages which represent hyperlinks contained in the web page and to provide to a user, via the web browser, an annotated web page.

10. A method according to claim 8 and wherein said visualization functionality comprises:

generation of a list of hyperlinks from a web page;

elimination of links which refer back to a web server sending said web page;

determination of whether redirection links are present and if so, providing thumbnail visual images of ultimate destinations thereof; and

providing thumbnail visual images of remaining hyperlinks.

11. A method according to claim 8 and wherein said visualization functionality comprises:

receiving a list of hyperlinks;

splitting a URL of each hyperlink into URL components including at least a path component and a host component;

trimming a path component based on the consideration of finding the most representative image of a given web page; and

constructing a new URL including a trimmed path component.

12. A method according to claim 1 and wherein said providing a-thumbnail visual image comprises:

employing a web browser which interfaces via the Internet with a web server including visualization functionality.

13. A method according to claim 12 and wherein said visualization functionality is operative to embed commands to the web browser to download, via said image server, thumbnail visual images of web pages which represent hyperlinks contained in the web page and to provide to a user, via the web browser, an annotated web page.

14. A method according to claim 13 and wherein said annotated web page includes the web page having within it thumbnail visual images of homepages of web sites referenced by hyperlinks contained in the web page.

15. A method according to claim 1 and wherein said thumbnail visual image appears hovering over said hyperlink.

16. A method for generating an image server database of thumbnail visual images of web pages, the method comprising:

receiving a list of URLs corresponding to said web pages, the thumbnail visual images of which it is desired to supply to said image server database;

operating a multiplicity of downloaders simultaneously to retrieve from the Internet, web pages and embedded objects corresponding to URLs from said list;

causing a thumbnail generator to render retrieved web pages retrieved simultaneously by said multiplicity of downloaders; and

causing said thumbnail generator to shrink said rendered images of said retrieved web pages and supply them to said image server database.

17. A method according to claim 16 also comprising deleting executable content from said retrieved web pages.

18. A system for presenting Internet information to a user comprising:

first functionality providing to a user a visual image of a web page containing at least one hyperlink; and

US 6,864,904 B1

13

second functionality operative at least partially concurrently with said first functionality for providing a thumbnail visual image of the home page of at least one web site which is represented by said at least one hyperlink via the Internet by employing an image server that stores and provides said thumbnail visual image.

19. A system according to claim 18 and wherein said thumbnail visual image is displayed alongside the visual image of said web page.

20. A system according to claim 19 and wherein said thumbnail visual image appears hovering over said hyperlink.

21. A system according to claim 18 and wherein said thumbnail visual image is displayed within the visual image of said web page.

22. A system according to claim 21 and wherein said thumbnail visual image appears hovering over said hyperlink.

23. A system according to claim 18 and wherein a plurality of thumbnail visual images represented by at least one hyperlink are displayed simultaneously along with said visual image of a web page containing at least one hyperlink.

24. A system according to claim 18 and wherein said web page comprises an HTML page.

25. A system according to claim 18 and wherein said second functionality comprises third functionality employing a web browser including visualization functionality which interfaces via the Internet with said image server.

26. A system according to claim 25 and wherein said visualization functionality is operative to download via the image server from an image database images of web pages which represent hyperlinks contained in the web page and to provide to a user, via the web browser, an annotated web page.

27. A system according to claim 25 and wherein said visualization functionality comprises:

- generation of a list of hyperlinks from a web page;
- elimination of links which refer back to a web server sending said web page;
- determination of whether redirection links are present and if so, providing thumbnail visual images of ultimate destinations thereof; and
- providing thumbnail visual images of remaining hyperlinks.

28. A system according to claim 25 and wherein said visualization functionality comprises:

- receiving a list of hyperlinks;
- splitting a URL of each hyperlink into URL components including at least a path component and a host component;
- trimming a path component based on the consideration of finding the most representative image of a given web page; and
- constructing a new URL including a trimmed path component.

29. A system according to claim 18 and wherein said second functionality comprises fourth functionality employing a web browser which interfaces via the Internet with a web server including visualization functionality.

30. A system according to claim 29 and wherein said visualization functionality is operative to embed commands to the web browser to download, via said image server, thumbnail visual images of web pages which represent hyperlinks contained in the web page and to provide to a user, via the web browser, an annotated web page.

14

31. A system according to claim 30 and wherein said annotated web page includes the web page having within it thumbnail visual images of homepages of web sites referenced by hyperlinks contained in the web page.

32. A system according to claim 18 and wherein said thumbnail visual image appears hovering over said hyperlink.

33. A system for generating an image server database of thumbnail visual images of web pages, the system comprising:

- a multiplicity of downloaders, each receiving at least one URL from a list of URLs corresponding to said web pages, the thumbnail visual images of which it is desired to supply to said image server database, and simultaneously retrieving from the Internet web pages and embedded objects corresponding to said at least one URL; and

at least one thumbnail generator operative to render the web pages, shrink said rendered images of the web pages and supply said rendered images to said image server database.

34. A system according to claim 33 and wherein said multiplicity of downloaders are operative to delete executable content from the web pages.

35. A method for presenting Internet information to a user comprising:

- providing to a user a visual image of a web page containing at least one hyperlink; and at least partially concurrently

providing a thumbnail visual image of another web page of at least one web site which is represented by said at least one hyperlink via the Internet by employing an image server that stores and provides said thumbnail visual image,

said providing a thumbnail visual image comprising employing a web browser which interfaces via the Internet with a web server, separated from said image server, including visualization functionality, said visualization functionality being operative to embed commands to the web browser to download, via said image server, thumbnail visual images of web pages which represent hyperlinks contained in the web page and to provide to a user, via the web browser, an annotated web page.

36. A method according to claim 35 and wherein said thumbnail visual image is displayed alongside the visual image of said web page.

37. A method according to claim 36 and wherein said thumbnail visual image appears hovering over said hyperlink.

38. A method according to claim 35 and wherein said thumbnail visual image is displayed within the visual image of said web page.

39. A method according to claim 38 and wherein said thumbnail visual image appears hovering over said hyperlink.

40. A method according to claim 35 and wherein a plurality of thumbnail visual images represented by at least one hyperlink are displayed simultaneously along with said visual image of a web page containing at least one hyperlink.

41. A method according to claim 35 and wherein said web page comprises an HTML page.

42. A method according to claim 35 and wherein said annotated web page includes the web page having within it thumbnail visual images of homepages of web sites referenced by hyperlinks contained in the web page.

US 6,864,904 B1

15

43. A method according to claim 35 and wherein said visualization functionality comprises:

generation of a list of hyperlinks from a web page;
elimination of links which refer back to a web server
sending said web page;
determination of whether redirection links are present and
if so, providing thumbnail visual images of ultimate
destinations thereof; and
providing thumbnail visual images of remaining hyper-
links.

44. A method according to claim 35 and wherein said visualization functionality comprises:

receiving a list of hyperlinks;
splitting a URL of each hyperlink into URL components
including at least a path component and a host com-
ponent;
trimming a path component based on the consideration of
finding the most representative image of a given web
page; and
constructing a new URL including a trimmed path com-
ponent.

45. A method according to claim 35 and wherein said thumbnail visual image appears hovering over said hyper-
link.

46. A system for presenting Internet information to a user comprising:

first functionality providing to a user a visual image of a
web page containing at least one hyperlink; and

second functionality operative at least partially concu-
rently with said first functionality for providing a
thumbnail visual image of another web page of at least
one web site which is represented by said at least one
hyperlink via the Internet by employing an image
server that stores and provides said thumbnail visual
image, said second functionality comprising third func-
tionality employing a web browser which interfaces via
the Internet with a web server, separated from said
image server, including visualization functionality,

said visualization functionality being operative to embed
commands to the web browser to download, via said
image server, thumbnail visual images of web pages
which represent hyperlinks contained in the web page
and to provide to a user, via the web browser, an
annotated web page.

47. A system according to claim 46 and wherein said thumbnail visual image is displayed alongside the visual
image of said web page.

16

48. A system according to claim 47 and wherein said thumbnail visual image appears hovering over said hyper-
link.

49. A system according to claim 46 and wherein said thumbnail visual image is displayed within the visual image
of said web page.

50. A system according to claim 49 and wherein said thumbnail visual image appears hovering over said hyper-
link.

51. A system according to claim 46 and wherein a plurality of thumbnail visual images represented by at least
one hyperlink are displayed simultaneously along with said visual image of a web page containing at least one hyperlink.

52. A system according to claim 46 and wherein said web page comprises an HTML page.

53. A system according to claim 46 and wherein said annotated web page includes the web page having within it
thumbnail visual images of homepages of web sites refer-
enced by hyperlinks contained in the web page.

54. A system according to claim 46 and wherein said visualization functionality comprises:

generation of a list of hyperlinks from a web page;
elimination of links which refer back to a web server
sending said web page;

determination of whether redirection links are present and
if so, providing thumbnail visual images of ultimate
destinations thereof; and

providing thumbnail visual images of remaining hyper-
links.

55. A system according to claim 46 and wherein said visualization functionality comprises:

receiving a list of hyperlinks;

splitting a URL of each hyperlink into URL components
including at least a path component and a host com-
ponent;

trimming a path component based on the consideration of
finding the most representative image of a given web
page; and

constructing a new URL including a trimmed path com-
ponent.

56. A system according to claim 46 and wherein said thumbnail visual image appears hovering over said hyper-
link.

* * * * *

JS 44 (Rev. 3/99)

CIVIL COVER SHEET

The JS-44 civil cover sheet and the information contained herein neither replace nor supplement the filing and service of pleadings or other papers as required by law, except as provided by local rules of court. This form, approved by the Judicial Conference of the United States in September 1974, is required for the use of the Clerk of Court for the purpose of initiating the civil docket sheet. (SEE INSTRUCTIONS ON THE REVERSE OF THE FORM.)

I. (a) PLAINTIFFS

GIRAFA.COM, INC.

(b) County of Residence of First Listed Plaintiff _____
(EXCEPT IN U.S. PLAINTIFF CASES)

(c) Attorney's (Firm Name, Address, and Telephone Number)

John G. Day
Ashby & Geddes
500 Delaware Avenue, 8th Floor
Wilmington, DE 19801 (302) 654-1888

DEFENDANTS AMAZON WEB SERVICES LLC,
AMAZON.COM, INC., ALEXA INTERNET, INC., IAC
SEARCH & MEDIA, INC., SNAP TECHNOLOGIES, INC.,
YAHOO! INC., SMARTDEVIL INC., EXALEAD, INC.,
and EXALEAD SA.

County of Residence of First Listed _____

(IN U.S. PLAINTIFF CASES ONLY)

NOTE: IN LAND CONDEMNATION CASES, USE THE LOCATION OF THE
LAND INVOLVED.

Attorneys (If Known)

unknown

II. BASIS OF JURISDICTION (Place an "X" in One Box Only)

- ☐ 1 U.S. Government Plaintiff ☒ 3 Federal Question (U.S. Government Not a Party)
- ☐ 2 U.S. Government Defendant ☐ 4 Diversity (Indicate Citizenship of Parties in Item III)

III. CITIZENSHIP OF PRINCIPAL PARTIES (Place an "X" in One Box for Plaintiff and One Box for Defendant)

- Citizen of This State ☐ 1 ☐ 1 DEF Incorporated or Principal Place of Business In This State ☐ 4 ☐ 4 DEF
- Citizen of Another State ☐ 2 ☐ 2 Incorporated and Principal Place of Business In Another State ☐ 5 ☐ 5
- Citizen or Subject of a Foreign Country ☐ 3 ☐ 3 Foreign Nation ☐ 6 ☐ 6

IV. NATURE OF SUIT (Place an "X" in One Box Only)

CONTRACT	TORTS	FORFEITURE/PENALTY	BANKRUPTCY	OTHER STATUTES	
<input type="checkbox"/> 110 Insurance <input type="checkbox"/> 120 Marine <input type="checkbox"/> 130 Miller Act <input type="checkbox"/> 140 Negotiable Instrument <input type="checkbox"/> 150 Recovery of Overpayment & Enforcement of Judgment <input type="checkbox"/> 151 Medicare Act (Excl. Veterans) <input type="checkbox"/> 152 Recovery of Defaulted Student Loans <input type="checkbox"/> 153 Recovery of Overpayment of Veteran's Benefits <input type="checkbox"/> 160 Stockholders' Suits <input type="checkbox"/> 190 Other Contract <input type="checkbox"/> 195 Contract Product Liability	PERSONAL INJURY <input type="checkbox"/> 310 Airplane <input type="checkbox"/> 315 Airplane Product Liability <input type="checkbox"/> 320 Assault, Libel & Slander <input type="checkbox"/> 330 Federal Employers' Liability <input type="checkbox"/> 340 Marine <input type="checkbox"/> 345 Marine Product Liability <input type="checkbox"/> 350 Motor Vehicle <input type="checkbox"/> 355 Motor Vehicle Product Liability <input type="checkbox"/> 360 Other Personal Injury	PERSONAL INJURY <input type="checkbox"/> 362 Personal Injury—Med. Malpractice <input type="checkbox"/> 365 Personal Injury—Product Liability <input type="checkbox"/> 368 Asbestos Personal Injury Product Liability PERSONAL PROPERTY <input type="checkbox"/> 370 Other Fraud <input type="checkbox"/> 371 Truth in Lending <input type="checkbox"/> 380 Other Personal Property Damage <input type="checkbox"/> 385 Property Damage Product Liability	<input type="checkbox"/> 610 Agriculture <input type="checkbox"/> 620 Other Food & Drug <input type="checkbox"/> 625 Drug Related Seizure of Property 21 USC <input type="checkbox"/> 630 Liquor Laws <input type="checkbox"/> 640 R.R. & Truck <input type="checkbox"/> 650 Airline Regs. <input type="checkbox"/> 660 Occupational Safety/Health <input type="checkbox"/> 690 Other	<input type="checkbox"/> 422 Appeal 28 USC 158 <input type="checkbox"/> 423 Withdrawal 28 USC 157 PROPERTY RIGHTS <input type="checkbox"/> 820 Copyrights <input checked="" type="checkbox"/> 830 Patent <input type="checkbox"/> 840 Trademark	<input type="checkbox"/> 400 State Reapportionment <input type="checkbox"/> 410 Antitrust <input type="checkbox"/> 430 Banks and Banking <input type="checkbox"/> 450 Commerce/ICC Rates/etc. <input type="checkbox"/> 460 Deportation <input type="checkbox"/> 470 Racketeer Influenced and Corrupt Organizations <input type="checkbox"/> 810 Selective Service <input type="checkbox"/> 850 Securities/Commodities/Exchange <input type="checkbox"/> 875 Customer Challenge 12 USC 3410 <input type="checkbox"/> 891 Agricultural Acts <input type="checkbox"/> 892 Economic Stabilization Act <input type="checkbox"/> 893 Environmental Matters <input type="checkbox"/> 894 Energy Allocation Act <input type="checkbox"/> 895 Freedom of Information Act <input type="checkbox"/> 900 Appeal of Fee Determination Under Equal Access to Justice <input type="checkbox"/> 950 Constitutionality of State Statutes <input type="checkbox"/> 890 Other Statutory Actions
REAL PROPERTY <input type="checkbox"/> 210 Land Condemnation <input type="checkbox"/> 220 Foreclosure <input type="checkbox"/> 230 Rent Lease & Ejectment <input type="checkbox"/> 240 Torts to Land <input type="checkbox"/> 245 Tort Product Liability <input type="checkbox"/> 290 All Other Real Property	CIVIL RIGHTS <input type="checkbox"/> 441 Voting <input type="checkbox"/> 442 Employment <input type="checkbox"/> 443 Housing/Accommodations <input type="checkbox"/> 444 Welfare <input type="checkbox"/> 440 Other Civil Rights	PRISONER PETITIONS <input type="checkbox"/> 510 Motions to Vacate Sentence <input type="checkbox"/> Habeas Corpus: <input type="checkbox"/> 530 General <input type="checkbox"/> 535 Death Penalty <input type="checkbox"/> 540 Mandamus & Other <input type="checkbox"/> 550 Civil Rights <input type="checkbox"/> 555 Prison Condition	LABOR <input type="checkbox"/> 710 Fair Labor Standards Act <input type="checkbox"/> 720 Labor/Mgmt. Relations <input type="checkbox"/> 730 Labor/Mgmt. Reporting & Disclosure Act <input type="checkbox"/> 740 Railway Labor Act <input type="checkbox"/> 790 Other Labor Litigation <input type="checkbox"/> 791 Empl. Ret. Inc. Security Act	SOCIAL SECURITY <input type="checkbox"/> 861 HIA (1395ff) <input type="checkbox"/> 862 Black Lung (923) <input type="checkbox"/> 863 DIWC/DIWW (405(g)) <input type="checkbox"/> 864 SSID Title XVI <input type="checkbox"/> 865 RSI (405(g)) FEDERAL TAX SUITS <input type="checkbox"/> 870 Taxes (U.S. Plaintiff or Defendant) <input type="checkbox"/> 871 IRS—Third Party 26 USC 7609	

V. ORIGIN (PLACE AN "X" IN ONE BOX ONLY)

- ☒ 1 Original Proceeding ☐ 2 Removed from State Court ☐ 3 Remanded from Appellate Court ☐ 4 Reinstated or Reopened ☐ 5 Transferred from another district (specify) _____ ☐ 6 Multidistrict Litigation ☐ 7 Appeal to District Judge from Magistrate Judgment

VI. CAUSE OF ACTION (Cite the U.S. Civil Statute under which you are filing and write brief statement of cause. Do not cite jurisdictional statutes unless diversity.)

Title 35 U.S. Code. This is an action arising under the patent laws of the United States.

VII. REQUESTED IN COMPLAINT:

☐ CHECK IF THIS IS A CLASS ACTION UNDER F.R.C.P. 23

DEMAND \$ _____

CHECK YES only if demanded in complaint:

JURY DEMAND: ☒ Yes ☐ No**VIII. RELATED CASE(S) IF ANY**

(See instructions):

JUDGE _____

DOCKET NUMBER _____

DATE

December 5, 2007

SIGNATURE OF ATTORNEY OF RECORD

FOR OFFICE USE ONLY

RECEIPT # _____ AMOUNT _____ APPLYING IFP _____ JUDGE _____ MAG. JUDGE _____

AO FORM 85 RECEIPT (REV. 9/04)

United States District Court for the District of Delaware

Civil Action No. 07-787-

ACKNOWLEDGMENT
OF RECEIPT FOR AO FORM 85

NOTICE OF AVAILABILITY OF A
UNITED STATES MAGISTRATE JUDGE
TO EXERCISE JURISDICTION

I HEREBY ACKNOWLEDGE RECEIPT OF 9 COPIES OF AO FORM 85.

12/5/07

(Date forms issued)

Matthew D. Gordon

(Signature of Party or their Representative)

Matthew D. Gordon

(Printed name of Party or their Representative)

Note: Completed receipt will be filed in the Civil Action